SUBCHAPTER 2.2

AIR QUALITY

2.2 Air Quality

Scientific Resources Associated (2008) prepared an Air Quality Impact Assessment for the Proposed Project to determine the potential for significant air quality impacts as a result of Project construction (short-term impacts) and post-development operation (long-term impacts). This analysis is summarized in the following discussion, with the complete report included as Appendix C of this EIR.

2.2.1 Discussion of Existing Conditions Relating to Air Quality

Meteorology/Climate

The Project site is located in the San Diego Air Basin (SDAB), which has a climate dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The prevailing winds in the Project study area are from the west, as measured at the San Diego Air Pollution Control District's (APCD's) Escondido Monitoring Station, the closest meteorological monitoring station to the site. The high pressure cell over the Pacific Ocean also creates two types of temperature inversions that have been linked to the degradation of local air quality. Subsidence inversions in San Diego occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, is known to develop on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone (O_3), commonly known as smog.

Regulatory Setting

Air Quality

Air quality is defined by ambient air concentrations of specific pollutants identified by the U.S. Environmental Protection Agency (EPA) to be of concern with respect to health and welfare of the general public. The EPA is responsible for enforcing the federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The federal CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the EPA established both primary and secondary standards for several pollutants (called "criteria" pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Refer to Table 2.2-1 for the NAAQS. In September 1997, the EPA promulgated national standards for 8-hour O_3 as well as 24-hour and annual $PM_{2.5}$ (fine particulate matter or particulate matter less than 2.5 microns in diameter). Following a 1999 District Court decision and a 2001 EPA appeal, the EPA has initiated a new planning process to monitor and evaluate emission control measures for these two pollutants and is moving forward to develop policies to implement these standards.

The federal CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The California Air Resources Board (ARB) has

established more stringent standards for six criteria pollutants in the California Ambient Air Quality Standards (CAAQS). The six criteria pollutants include: O_3, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), PM_{10} (respirable particulate matter or particulate matter less than 10 microns in diameter), and $PM_{2.5}$. In addition, the ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles (Table 2.2-1). Similar to the federal status discussed above, thresholds are currently being developed for specific air basins for $PM_{2.5}$.

Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant. On April 15, 2004, the SDAB was designated a basic nonattainment area for the 8-hour NAAQS for O_3. The SDAB is in attainment for the NAAQS for all other criteria pollutants. With regard to the CAAQS, the SDAB is currently classified as a nonattainment area for O_3 and PM_{10}. The SDAB is in attainment for the CAAQS for all other criteria pollutants.

The ARB is the State regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The ARB is responsible for the development, adoption, and enforcement of the State's motor vehicle emissions program, as well as the adoption of the CAAQS. The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County.

The APCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, and most recently in 2004. The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for O_3. The APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the federal CAA for areas that are out of attainment of air quality standards. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis, with the latest revision to the California SIP submitted to EPA in 2004.

The County RAQS relies on information from the California ARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, proposed development projects that are consistent with the growth anticipated by the general plans and with growth forecasts developed by SANDAG for the applicable major statistical area (MSA)[1], would be consistent with the RAQS and SIP. However, if a project proposes development that is greater in density than what is anticipated in an adopted general plan and SANDAG's growth projections, the project may be in conflict with the RAQS and SIP, and may result in potentially significant impacts to air quality.

[1] MSA is a geographic area/unit within the County of San Diego wherein land use projections and statistics are compiled for analyses purposes and growth forecasting. There are seven MSAs in the County.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the APCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for O_3. Projects that are consistent with the SIP rules (i.e., the federally approved rules and regulations adopted by the APCD) are consistent with the SIP. Thus, projects would be required to conform with measures adopted in the RAQS (including use of low-VOC architectural coatings, use of low NO water heaters, and compliance with rules and regulations governing stationary sources) and also would be required to comply with all applicable rules and regulations adopted by the APCD. Refer to Table 2.2-1 for a summary of the ambient air quality standards adopted by the federal and California Clean Air Acts.

Climate Change

Recognizing public interest and concern regarding climate change and recent California legislation on this topic, this section provides information and analysis on the regulatory setting relevant to analysis of climate change.

~~International and Federal Legislation.~~ In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess "the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation" (Association of Environmental Professionals [~~APE~~AEP] 2007).

The United States [U.S.] joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was entered on March 21, 1994. Under the Convention, governments: gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change (AEP 2007).

The Kyoto Protocol is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of greenhouse gases or engage in emissions trading. More than 160 countries, constituting 55 percent of global emissions, are under the protocol. Former U.S. Vice President Al Gore symbolically signed the Protocol in 1998. In order for the Protocol to be formally adopted or ratified, however, it must be adopted by the U.S. Senate, which was not done under the Clinton or Bush administrations. ~~The current U.S. President, George W. Bush, has indicated that he does not intend to submit the treaty for ratification.~~

The Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. This Protocol stipulates that the production and consumption of compounds that deplete O_3 in the stratosphere--chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform--were to be phased out by 2000 (except methyl chloroform, which was to be phased out by 2005).

In October 1993, former President Clinton announced his Climate Change Action Plan, which had a goal to return greenhouse gas emissions to 1990 levels by the year 2000. This was to be accomplished

through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions.

~~California Legislation.~~ Although not originally intended to reduce GHG emissions, California Code of Regulations Title 24 Part 6, California's Energy Efficiency Standards for Residential and Non-residential Buildings, were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments were made in October 2005. Energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency results in decreased GHG emissions.

California Assembly Bill 1493 (Pavley), enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by ARB will apply to 2009 and later model year vehicles. ARB estimates that the regulation will reduce climate change emissions from light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (AEP 2007).

California Governor Arnold Schwarzenegger's Executive Order S-3-05 (June 1, 2005), identified GHG emission reduction targets as follows: reduce emissions to 2000 levels by 2010; reduce emissions to 1990 levels by 2020; and reduce emissions to 80 percent below 1990 levels by 2050. Some literature equates these reductions to 11 percent by 2010 and 25 percent by 2020.

The USEPA does not currently regulate GHGs. Notwithstanding the lack of EPA regulation of GHG emissions, the California State Legislature adopted Assembly Bill (AB 32), California Global Warming Solutions Act of 2006. AB 32 requires ARB, the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. AB 32 establishes a multi-year timeline for the development and implementation of GHG reporting and mitigation policy. The first step was the development of so-called "early actions" measures. A draft list of these early action measures was circulated for public comment beginning on April 20, and finalized in May 2007. ~~Included m~~Measures proposed to take ~~represent discrete opportunities to achieve GHG reductions that are proposed to be taking~~ legal effect by January 1, 2010 include discrete opportunities to achieve GHG reductions. As the policy making process continues, ARB considers a broader set of mitigation measures, including carbon sequestration projects and BMPs that are technologically feasible and cost-effective. GHGs as defined under AB 32 include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. A Draft "Expanded List of Early Action Measures to Reduce Green House Gas Emissions in California Recommended for Board Decision" was circulated in September 2007, with a final version undergoing public review in October.

By January 1, 2008, AB 32 requires ARB to determine what the statewide GHG emissions level was in 1990, and approve a statewide GHG emissions limit that is equivalent to that level, to be achieved by 2020. While the level of 1990 GHG emissions has not yet been approved, other publications indicate that levels varied from 425 to 468 teragrams carbon dioxide equivalent (Tg CO_2 Eq.) (California Energy Commission [CEC] 2006). In 2004, the emissions were estimated at 492 Tg CO_2 Eq. (CEC 2006). Using the range of 1990 emissions, a reduction of between 5 and 13 percent would be needed to reduce 2004 levels to 1990 levels.

Executive Order S-01-07 was enacted by the California Governor on January 18, 2007. Essentially, the order mandates the following: (1) a statewide goal is to be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and (2) a Low Carbon Fuel Standard (LCFS) for transportation fuels is to be established for California.

~~Relationship to CEQA.~~ As noted, this topic has not previously been addressed in EIRs and guidance is not currently provided in CEQA regarding this topic. It is not included in the Environmental Checklist Form provided in Appendix G of the CEQA Guidelines and significance thresholds for this topic have yet to be adopted by the County. CEQA does, however, provide guidance regarding topics such as climate change. Sections 15144 and 15145 of the CEQA Guidelines address forecasting and speculation. Section 15144 notes that drafting an EIR necessarily involves some degree of forecasting. While forecasting the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it can within reason. (The Lead Agency is not required to engage in idle speculation.) Section 15145 deals with the difficulty in forecasting where a thorough investigation is unable to resolve an issue and the answer remains purely speculative.

Section 15146 of the CEQA guidelines relates to informed decision-making. The California Office of Planning and Research's commentary for this section notes that the rule of reason applies and the analysis must be specific enough to permit informed decision making and public participation. An EIR, however, does not need to engage in a speculative analysis of environmental consequences.

With regard to the topic of climate change, it is possible to document the current state of research regarding this topic and to forecast an emissions inventory for GHGs associated with the Proposed Project at build out. These data are provided below to allow for informed decision making and public participation regarding this topic.

Background Air Quality

Project area air quality is best characterized from ambient measurements made by the APCD, the agency responsible for air quality planning, monitoring, and enforcement in the SDAB. There are no routine air quality measurements made in Ramona, and the nearest APCD monitoring stations to the Project site are the Escondido East Valley Parkway station and the San Diego 12th Avenue station (which is the closest station that measures SO_2; CO has not been monitored at other stations in northern San Diego County since 2000). Because both the Escondido and San Diego 12th Avenue monitoring stations are located in areas where there is substantial traffic congestion, it is likely that pollutant concentrations measured at those monitoring stations are higher than concentrations that would be observed or measured in the Project study area, and would therefore represent a conservative, worst-case estimate of background ambient air quality.

Table 2.2-2 summarizes the monitoring data for Escondido for the last three years of published data. Healthful air quality is seen in almost every pollution category. The federal 8-hour O_3 standard was exceeded at the Escondido monitoring station three times in 2003, twice in 2004 and just once in 2005. Due to measured exceedances at other monitoring stations, however, the SDAB was classified as a nonattainment area for the 8-hour NAAQS for O_3. The Escondido monitoring station also measured exceedances of the State PM_{10} and $PM_{2.5}$ standards during the period from 2003 to 2005. The data from the monitoring stations indicate that air quality is in attainment for all other federal and State standards (NO_2, CO, and SO_2), with the only measured exceedances occurring during the Cedar Fire event in 2003.

Concentrations of CO at the Escondido monitoring station tend to be among the highest in the SDAB due to the fact that the monitoring equipment is located along East Valley Parkway in a congested area in downtown Escondido. The station sees higher concentrations of CO than have historically been measured elsewhere in San Diego County and the background data are not likely to be representative of background ambient CO concentrations at the Project site, due to the site's location in a less developed area.

Climate Change

This topic is new since 2007 and currently is under evaluation. The County's approach to this information and analysis is based on relevant available data regarding climate change and a project-specific emissions inventory for GHGs.

~~*General Approach*~~

~~In this section, climate change effects of the Proposed Project are addressed in two contexts:~~

1. ~~How does the Project affect climate change? This is done by forecasting and preparing an emissions inventory for the Project based on the Project description and features incorporated in the Project design.~~

2. ~~How does climate change affect the Project? Due to the global nature of climate change, this cannot be forecasted in a project-specific manner but potential effects of global change on factors such as wildfire hazard and water use reliability are discussed in this section.~~

~~*Existing Conditions*~~

~~Global Climate Change – General Overview.~~ Global climate change alleged to be caused by GHGs is currently one of the most important and widely debated scientific, economic, and political issues in the U.S. Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. Historical records have shown that temperature changes have occurred in the past, such as during previous ice ages. Some data indicate that the current temperature record differs from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 Eq. concentration is required to keep global mean warming below 2°C, which is assumed to be necessary to avoid dangerous climate change (AEP 2007).

~~Greenhouse Gases.~~ Gases that trap heat in the atmosphere are often called GHGs. GHGs are emitted by natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without these natural GHGs, the earth's surface would be about 61°F cooler (CEC 2006). Emissions from human activities such as electricity production and vehicle use have elevated the concentration of these gases in the atmosphere.

GHGs have varying global warming potential (GWP). The GWP is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative

to a reference gas" (AEP 2007); it is the potential of a gas or aerosol to trap heat in the atmosphere. The reference gas for GWP is CO_2, which has a GWP of one. For example, methane has a GWP of 21, which means that it has a greater global warming effect than carbon dioxide on a molecule per molecule basis. One Tg CO_2 Eq. is the emissions of the gas multiplied by the GWP. One Tg is equivalent to one million metric tons. The CO_2 Eq. is a good way to assess emissions because it gives weight to the GWP of the gas. The atmospheric lifetime and GWP of selected greenhouse gases are summarized in Table 2.2-15. As shown in the table, GWP ranges from 1 for CO_2 to 23,900 for sulfur hexafluoride.

~~GHG Inventory.~~ In 2004, total global GHG emissions were 20,135 Tg CO_2 Eq., excluding emissions/removals from land use, land use change, and forestry (UNFCCC 2006). In 2004, the U.S. contributed the most GHG emissions of any other country (35 percent of global emissions). In 2004, GHG emissions in the U.S. were 7,074.4 Tg CO_2 Eq., which is an increase of 15.8 percent from 1990 emissions (AEP 2007).

California is a substantial contributor of global GHGs; it is the second largest contributor in the U.S. and the sixteenth largest in the world (AEP 2007). In 2004, California produced 492 Tg CO_2 Eq. (AEP 2007), which is approximately 7 percent of U.S. emissions. The major source of GHG in California is transportation, contributing 41 percent of the state's total GHG emissions. Electricity generation is the second largest source, contributing 22 percent of the state's GHG emissions (AEP 2007).

Existing On-site Conditions.

~~Background.~~ Natural vegetation and soils temporarily store carbon as part of the terrestrial carbon cycle. Carbon is assimilated into plants and animals as they grow and then dispersed back into the environment when the die. There are two existing sources of carbon storage at the Montecito Ranch project site: natural vegetation and soils.

~~Natural Vegetation.~~ Living vegetation stores carbon; however, it is difficult to assess net changes in carbon storage associated with the Project site. The key issue is the balance between the loss of natural vegetation and future carbon storage associated with landscaping and residential development. The situation is further complicated by changes in fire regime. Carbon in natural vegetation is likely to be released into the atmosphere through wildfire every 20 to 150 years. Carbon in landscaped areas will be protected from wildfire. The balance between these factors will influence the long-term carbon budget on the site.

~~*Soils.*~~ The majority of carbon within the Project site is stored in the soil. Soil carbon accumulates from inputs of plant and animal matter, roots, and other living components of the soil ecosystem (e.g., bacteria, worms, etc.). Soil carbon is lost through biological respiration, erosion, and other forms of disturbance. Overall, soil carbon offers greater potential for long-term carbon storage. Field observations suggest that urban soils can sequester relatively large amounts of carbon, particularly in residential areas where management increases inputs to the soil and reduces disturbance. Observations from across the U.S. suggest that cities in warmer and drier climates (such as San Diego) may have slightly higher soil organic matter levels when compared to equivalent areas before development.

2.2.2 Identification and Discussion of Guidelines for the Determination of Significance

A significant air quality impact under general CEQA guidelines would occur if the Proposed Project would:

1. Obstruct or conflict with the implementation of the RAQS or applicable portions of the SIP.

2. Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation of federal and State air quality standards as outlined in the Table 2.2-2.

3. Exceed the following cumulative impact thresholds, which have been established by the San Diego Air Pollution Control District (APCD) for the preparation of Air Quality Impact Assessments (AQIAs):

AQIA THRESHOLDS			
Air Contaminant	**Emission Rate**		
Construction Emissions			
	Lbs/day		
Respirable Particulate Matter (PM_{10})	100		
Oxides of Nitrogen (NO_X)	250		
Oxides of Sulfur (SO_X)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)	75		
Operational Emissions			
	Lbs/hour	**Lbs/day**	**Tons/year**
Particulate Matter (PM_{10})	---	100	15
Oxides of Nitrogen (NO_x)	25	250	40
Oxides of Sulfur (SO_x)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Components	---	3.2	0.6
Volatile Organic Compounds (VOCs)[2]	---	75	13.7

Specifically, APCD Rule 20.2 states that any project which results in an emissions increase equal to or greater than any of the above AQIA thresholds must demonstrate through an AQIA that the project will not:

(a) Cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard;

(b) Cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded;

(c) Cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded; or

(d) Prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard.

A significant air quality impact related to toxic emissions would occur if the Project would:

4. Expose sensitive receptors (including, but not limited to schools, hospitals, resident care facilities, or day-care centers) to an individual excess cancer risk that exceeds 1 in 1 million but is less than 10 in 1 million, unless toxics best available control technology (T-BACT) is employed. A risk of greater than 10 in 1 million would be significant, even with the application of T-BACT; or

5. Create objectionable odors affecting a substantial number of people.

A significant air quality impact related to global climate change would occur if the Project would:

6. Interfere with California's ability to achieve GHG reduction goals and strategies as identified in AB 32 and Executive Order S-01-07.

Guideline Sources/Methodology

Air Quality

Identified Guideline Nos. 1, 2, 3, and 5 are based on Appendix G of the State CEQA Guidelines, with County staff guidance. These guidelines have been modified to reflect specific Project issues and conditions in San Diego County, including APCD requirements and/or guidelines and are intended to prevent adverse effects on the public health and welfare by protecting human health with an adequate margin of safety (primary standards), and protecting property and the public welfare (secondary standards).

Guideline No. 4 is intended to identify acceptable/unacceptable levels of potential public health (i.e., cancer) risk related to the generation of toxic air contaminants (TAC). These levels are based on criteria established by the South Coast Air Quality Management District (SCAQMD), which identify: (1) an excess individual cancer risk of up to 1 in 1 million as less than significant; (2) a risk of between 1 in 1 million and 10 in 1 million as acceptable if T-BACT is used; and (3) any risk greater than 10 in 1 million as clearly significant.

Global Climate Change

Guidelines for determination of significance are not currently provided for climate change in CEQA, and the Environmental Checklist Form in Appendix G of the CEQA Guidelines does not address this topic. The California Air Pollution Control Officers Association (CAPCOA) has identified a 900-metric ton screening threshold for residential projects (roughly 50 single-family homes) as one approach to capture 90 percent or more of likely future discretionary projects. Until more direction is provided by the state, the County is suggesting that projects utilize the aforementioned screening threshold identified by CAPCOA. Additionally, the California Office of Planning and Research (OPR) has acknowledged that the global nature of climate change makes it difficult for lead agencies to rely on local or regional definitions for determining "significance." Accordingly, OPR has asked ARB technical staff to recommend a method for setting thresholds that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. In the interim, however, OPR recommends that lead agencies develop their own approach for analyzing climate change that includes the following three steps: (1) identify and quantify the GHG emissions; (2) assess the

significance of impact on climate change; and (3) if the impact is found to be significant, identify alternatives and/or mitigation measures that will reduce the impact below significance. The GHG analysis conducted for the Proposed Project is consistent with the approach outlined by OPR. ~~As noted above, AB 32 requires that by January 1, 2008 the state will complete a statewide GHG emissions inventory and approve a GHG emissions limit. This work may provide direction to establish CEQA guidelines for determination of significance for this topic, but that information is not currently available.~~

At this time, AB 32 includes the following goals for reduction of GHG emissions:

- 2000 levels by 2010 (11 percent below "business as usual")
- 1990 levels by 2020 (25 percent below "business as usual")
- 80 percent below 1990 levels by 2050

Attainment of GHG-related emissions at 80 percent below 1990 levels by 2050 has been projected in AB 32 as the level at which negative GHG effects could be appropriately controlled. In order to attain this reduction on a project-specific level, controls must also be set over emissions anticipated to result from Montecito Ranch implementation. Allowing the project to be constructed and used under current standards unrelated to AB 32 (e.g., standards set by the State and County for safe housing) would not result in required savings, because it would simply result in "business as usual." This is the standard identified in AB 32 from which emissions are to be reduced.

For purposes of this EIR, a target of 20 percent below "business as usual" has been established. This is considered to be an appropriate midpoint between the 2010 and 2020 targets set forth in AB 32 considering the timeframe for construction of the Proposed Project is assumed to be three to six years and would therefore fall within these dates.

~~As noted, the baseline for this guideline as identified in AB 32 is "business as usual."~~ For purposes of a land development project such as the Proposed Project, "business as usual" is considered to be development according to the energy efficiency standards established in Title 24. The guideline for this EIR, therefore establishes a 25 percent reduction over Title 24. Since "business as usual" would be in compliance with Title 24 standards, ~~A~~a 25 percent reduction ~~over~~ in emissions assumed under Title 24 compliance would exceed ~~will achieve~~ this EIR target guideline of 20 percent below "business as usual" for overall GHG emissions by 5 percent.

2.2.3 Analysis of Project Effects and Determination as to Significance

Characteristic types of air quality impacts associated with residential development include short-term emissions of dust and heavy equipment exhaust during construction, long-term regional emissions of vehicular exhaust from Project resident travel, microscale accumulation of vehicular exhaust CO creating air pollution "hot spots," toxic emission, and odors. Residential developments are generally not sources for significant quantities of toxic or nuisance air emissions, with the possible exception of emissions and dust generated during short-term construction activities. Project-related air quality impacts were addressed based on the above significance guidelines and using analysis guidance documents prepared by a wide variety of agencies (EPA, ARB, Caltrans, APCD, etc.).

Conformance with RAQS and SIP (Significance Guideline No. 1)

The Project site is primarily vacant land and is designated as a Specific Plan area within the RCP area. The Proposed Project is a rural residential community consisting of 417 single-family residences situated on 935.2 acres. The 417 residences would be located in two separate units. Unit 1 of the development would contain 243 residential dwellings and Unit 2 would be comprised of the remaining 174 residences. Proposed lots would range in size from approximately 0.5 acre (20,000 s.f. minimum) to 1.8 acres.

Preliminary SANDAG forecasts for San Diego County predict a 45 percent increase in the number of housing units in the Ramona Subregional Area in the 30 years between 2000 and 2030 (SANDAG 2006). This represents an increase of 4,096 housing units from existing levels. The 417 housing units comprising the Proposed Project represent 10.2 percent of the forecast total. The RCP specifies development of up to 417 units, as proposed, within the Montecito Ranch site. The development density and magnitude are both consistent with development goals and projections for the Ramona area. Therefore, the Proposed Project would conform with the RAQS and SIP, pursuant to Significance Guideline No. 1 and impacts would be **less than significant**.

Generation of Project-related Emissions and Pollutants (Significance Guideline Nos. 2, 3, and 4)

Short-term Construction Emissions

Construction impacts include emissions from heavy construction equipment operating at the site, worker commutes, use of architectural coatings, asphalt off-gassing, and fugitive dust generated during grading activities.

Emissions that are not amenable to capture by a hood, duct, chimney, or other control device are called "fugitive" emissions. Dust (PM_{10}) created during on- and off-site clearing, grading, excavation and vehicle movement on any unpaved roads is one of the most common sources of fugitive emissions. Fugitive dust emissions were estimated using the emission factor for PM_{10} emissions from the URBEMIS Model of 10 pounds per acre per day (lbs/acre/day). It was assumed, based on URBEMIS default assumptions, that 25 percent of the total area could be graded in a single day; thus for Unit 1, the maximum daily grading would be estimated at 41.325 acres, and for Unit 2, the maximum daily grading would be estimated at 32.05 acres. It should be noted that grading could occur in Units 1 and 2 simultaneously; however, the amount of surface disturbance, heavy equipment, truck trips and worker trips would remain the same on a daily basis.

In accordance with the San Diego County Grading Ordinance Section 87.428, dust control measures must be implemented for all grading projects taking place in the County of San Diego. The Grading Ordinance requires that:

> All clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading or improvement plans shall require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust.

The SCAQMD's Air Quality Handbook Table 11-4, provides control efficiencies to estimate the efficiency of the dust control measures required by the Grading Ordinance. BMPs to reduce the amount of fugitive dust generated from construction of the proposed project would include the following:

- Three applications of water daily during grading between dozer/scraper passes
- Paving, chip sealing or chemical stabilization of internal roadways after completion of grading
- Use of sweepers or water trucks to remove "track-out" at any point of public street access
- Stabilization of dirt storage piles by chemical binders, tarps, fencing or other erosion control
- Reduction of speeds on unpaved surfaces to 15 mph or less
- Watering unpaved roads three times daily
- Replacement of ground cover in disturbed areas quickly
- Control of fugitive dust during loading/unloading activities
- Application of soil stabilizers to inactive sites

These measures serve as BMPs for dust control and were included as part of the project design, but serve as effective mitigation measures for fugitive dust. Fugitive dust from grading operations was calculated using the URBEMIS Model, Version 9.2.2, with default assumptions regarding the grading emission factor (the latest version of the model does not contain San Diego-specific emission factors).

With implementation of these BMPs for dust, the daily significance threshold of 100 lbs/day for PM_{10} emissions would not be exceeded, pursuant to Significance Guideline No. 2. Project grading as proposed would therefore have a **less than significant** air quality impact with respect to PM_{10} emissions.

Based on the SCAQMD's guidance for estimating emissions of $PM_{2.5}$ (SCAQMD 2006), emissions of fugitive PM_{10} are comprised of approximately 21 percent $PM_{2.5}$, heavy equipment PM_{10} is approximately 89 percent $PM_{2.5}$, and other combustion emissions are approximately 99 percent $PM_{2.5}$. These fractions were used to estimate emissions of $PM_{2.5}$ during construction. Modeling results in an emissions estimate of approximately 54.49 lbs/day of $PM_{2.5}$ during the major grading of the Project for Unit 1, 44.75 lbs/day for Unit 2, and 5.34 lbs/day for the off-site roadway improvements, which is less than the threshold of 55 lbs/day. Pursuant to Significance Guideline No. 2, impacts would be **less than significant.**

Construction activity parameters were compiled based on projects similar to the Proposed Project, including equipment proposed for use and estimated maximum construction activity levels. On-site grading equipment assumptions include eight scrapers, four roller compactors, four haul trucks, three water trucks, two backhoes, one D-8 dozer, one D-9 dozer, one D-10 dozer, one rubber tire dozer, one loader, one motor grader, and one tube grinder. Utilities and surface improvements would require at a maximum three rollers, two backhoes, two motor graders, one excavator, one excavator with a compaction wheel, one loader, one water truck, one scraper, one vibratory roller, one curb machine (concrete paver), one paver, one crane, and one skiploader. During housing construction, the maximum equipment would include eight forklifts, four generators, and two cranes. The maximum construction equipment requirements for off-site roadway improvements include: three pavers, three rollers, two motor graders, one scraper, one water truck, and one skiploader. An estimated 15 to 240 workers per day (depending on the construction activity) would be required to complete grading and

construction of the Project under Wastewater Management Option 1. A conservative estimate of an additional 70 workers per day was made for the construction of the WRF under Option 2. These factors were incorporated into the URBEMIS Model to develop the worst-case emissions shown in Tables 2.2-3 through 2.2-10. Equipment exhaust pollutants (i.e., ROG, NO_x, CO, and SO_2) would not exceed the adopted significance thresholds, pursuant to Significance Guideline Nos. 2 and 3; therefore, impacts would be **less than significant**.

It was assumed that heavy-duty truck traffic would travel 50 miles per day based on the approximate round trip distance from the San Marcos/Escondido area to Ramona, and that workers would commute the same distance to the construction site. Impacts to air quality due to construction-related vehicular travel would be **less than significant**.

Asphalt off-gassing emissions for on- and off-site roadway improvements were calculated using an emission rate of 2.6 lbs/acre of area to be paved, in accordance with the URBEMIS Model. The air quality impact assessment estimated that approximately one acre would be paved on site per day and one acre would be paved off site per day, resulting in 2.6 lbs/day of VOC emission for on-site and off-site paving activities (Tables 2.2-4, 2.2-5, and 2.2-7).

Project construction would include water-based architectural coatings applied using electrostatic spray guns and/or brushes. Residential architectural coating applications would take place over approximately six months. Architectural coatings were assumed to contain up to 250 grams per liter of VOCs and were assumed to be applied with high pressure-low volume spray guns and/or hand application to reduce emissions in accordance with SCAQMD CEQA Handbook Table A11-13-D. Emissions associated solely with application of architectural coatings would not exceed the thresholds of significance and are shown in Table 2.2-6. Combined with other house construction activities (also shown on Table 2.2-6), however, emissions would be above screening thresholds. Table 2.2-8 shows the maximum daily emissions projected assuming that individual construction phases, such as underground utilities installation and house construction, could occur simultaneously. Under this scenario, the maximum daily emissions would be below the screening-level thresholds for all pollutants pursuant to Significance Guideline Nos. 2 and 3, except VOCs related to architectural coatings. The Project would comply with the requirements of APCD Rule 67.0, which limits the amount of VOCs that can be contained in coatings. Nonetheless, Project construction as proposed would have a temporarily significant air quality impact with respect to VOC emissions. **(Significant Impact No. 2.2.3a)**

As can be seen in Tables 2.2-3 through 2.2-9, during the maximum daily construction scenario (and excluding VOCs), the construction emissions for CO, NO_X and SO_X would not exceed the thresholds of significance, pursuant to Significance Guideline Nos. 2 and 3; impacts would be **less than significant**.

Diesel Emissions and Sensitive Receptors. Diesel exhaust particulate matter is known to the State of California to contain carcinogenic compounds. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined in the California Office of Environmental Health Hazard Assessment (OEHHA) guidelines, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003a) as 24 hours per day, 7 days per week, 365 days per year, for 70 years. Diesel exhaust particulate matter would be emitted during construction due to the operation of heavy equipment at the site. Because

diesel exhaust particulate matter is considered to be carcinogenic, long-term exposure to diesel exhaust emissions has the potential to result in adverse health impacts.

To assess whether there is a potential for a significant impact associated with exposure to diesel exhaust particulate matter, a health risk evaluation was conducted on Project-related particulate emissions. The amount of diesel particulate varies with the Project schedule and construction phasing. Emissions from heavy equipment for each Project phase were estimated as shown in Table 2.2-10. The construction heavy equipment sources were represented as six separate point sources 10 feet high, each with a stack diameter of 6 inches, and a stack exit temperature of 300 degrees Fahrenheit.

The nearest existing sensitive receptors were located based on the site map and aerial photographs for the Project area and include the residential area immediately south of the Project site. The risk evaluation was conducted to assess the potential for an unacceptable risk at these existing receptors due to exposure to diesel particulate emissions from heavy construction equipment during construction.

The EPA's approved air dispersion model, ISCST3 (EPA 1999), was used to estimate the downwind impacts at the closest receptors to the construction site. Refer to Appendix C for a detailed explanation of this analysis and the risk assessment formula. Based on the results of the dispersion model, the maximum excess cancer risk predicted would be 0.78 in 1 million under Wastewater Management Option 1. The maximum excess cancer risk for exposure to diesel particulates during construction of the WRF would be 0.08 in 1 million. The total excess cancer risk under Option 2 would therefore be 0.86 in 1 million. These values are below the County's significance threshold of 1 in 1 million without application of T-BACT, pursuant to Significant Guideline No. 4, and impacts would be less than significant. Although impacts would be **less than significant**, the following design measures would be implemented to further reduce emissions from construction equipment: (1) reduction of idling times and (2) use of low-sulfur fuels (refer to Table 1-7 and "List of Mitigation Measures and Environmental Design Considerations" at the end of this EIR).

Odors. During construction, diesel equipment operating at the site may generate some nuisance odors; however, due to the distance of sensitive receptors from the Project site and the temporary nature of construction, odors associated with Project construction would be **less than significant**, pursuant to Significance Guideline No. 5.

Long-term Operation Emissions (Significance Guideline No. 2)

Operational impacts associated with the Proposed Project would include emissions from Project-generated vehicle traffic; emissions associated with energy use, landscaping, and the use of fireplaces at the proposed residences; and emissions associated with operation of the WRF as proposed under Wastewater Management Option 2. Each of these operational emissions have been projected in Tables 2.2-11 and 2.2-12.

Vehicle Emissions Impacts. The Proposed Project, with 417 single-family residences, is projected to generate 5,004 daily vehicle trips with a trip generation factor of 12 trips per residence. The parks and charter high school would result in an additional 881 daily trips with associated emissions. Vehicles associated with these uses are typically a mix of autos and light-duty trucks (e.g., pick-ups, SUVs, and vans). Refer to Table 2.1-4 for Proposed Project trip-generation rates.

To calculate emissions from the Project, it was assumed that Unit 1, which is comprised of 243 residential units, would be complete and occupied by the year 2010. Regional exhaust emissions from daily vehicle travel and residential emissions (e.g. fireplace emissions) were calculated using the ARB URBEMIS Model with its default settings for trip lengths, vehicle mixes, cold starts, etc. (As noted above, URBEMIS Version 9.2.2, does not contain emission factors for San Diego County.) As shown in Table 2.2-11, emissions associated with operations for Unit 1 would be below the screening-level thresholds, and thus impacts would be **less than significant**, pursuant to Significance Guideline No. 2.

Unit 2, which is comprised of 174 residential units along with the parks (and potentially the future charter high school), would be completed and occupied by the year 2015. Emissions for Unit 2 were calculated using the URBEMIS Model with default assumptions as discussed above. The model results for Units 1 and 2 combined are shown in Table 2.2-12. Emissions for Units 1 and 2 would be less than the screening-level thresholds, and impacts would therefore be **less than significant**, pursuant to Significance Guideline No. 2.

Energy Use, Fireplace, and Landscaping Emissions. Operational impacts associated with energy use were estimated based on the SCAQMD's emission factors for residential use. Emissions associated with the use of fireplaces in residences are projected based upon the EPA's AP-42 emission factors (EPA 1995). It was assumed that each residence would use natural gas fireplace(s). Landscaping emissions (e.g., from gas-powered lawn mowers and blowers, etc.) were calculated using the URBEMIS Model. The projected emissions for each criteria pollutant due to energy use, fireplaces, and landscaping are shown in Tables 2.2-11 and 2.2-12. Impacts associated with energy use, fireplaces, and landscaping would be **less than significant**.

WRF. Criteria pollutant emissions associated with operation of the WRF include emissions of criteria pollutants from operating the emergency generator for testing purposes and emissions from worker vehicles. It was assumed that the emergency generator would be required to supply power to the facility during periods when electricity is not available. The generator would be tested for 30 minutes per week to ensure that it is operating properly. For the purpose of estimating emissions from the generator, it was assumed that the generator would be 300 kilowatts (kW) in size. Emissions associated with worker travel to the site were estimated assuming that 10 workers would be required to operate the WRF. Criteria pollutant emissions are shown in Table 2.2-13. These emissions would be added to the emissions associated with 2015 Project operations, as shown in Table 2.2-12. Impacts associated with the WRF would be **less than significant**.

CO Hot Spots. Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO "hot spots" was conducted. The TIA for the Project (USAI 2008) evaluated whether or not there would be a decrease in LOS at the roadways and/or intersections affected by the Project and the potential for CO "hot spots" was evaluated based on the results of the TIA. The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed to determine whether a CO "hot spot" is likely to form due to Project-generated traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when: (1) the LOS of an intersection or roadway decreases to a LOS E or worse; (2) signalization and/or channelization is added to an intersection; and (3) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The TIA evaluated eight intersections in the Project vicinity with regard to existing, near-term, and buildout (2030) conditions and LOS. Based on the TIA, the following intersections were projected to have a degradation in LOS from an acceptable level (A through D) to E or F due to Project-related traffic alone (direct impact).

- Ash Street/Pine Street – AM and PM peak hours
- Pine Street/Olive Street – AM and PM peak hours
- Pine Street/Main Street – AM and PM peak hours
- Main Street/Montecito Road – AM and PM peak hours
- SR 67/Highland Valley Road/Dye Road– AM and PM peak hour
- SR 67/Archie Moore Road – AM and PM peak hours

Procedures within the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) require estimates of future background CO concentrations in the Project vicinity to be added to Project impacts to calculate the potential for CO "hot spots" due to the Project. Because the highest 1-hour background concentration of CO in the past three years occurred during the Cedar Fire event in October 2003, that concentration was not considered representative of background levels for the Project site. As a conservative estimate of background CO concentrations, the maximum 1-hour background CO concentration of 6.3 ppm and the maximum 8-hour CO background concentration of 3.61 ppm, both measured at the Escondido monitoring station for the period 2004-2005, were used to represent future maximum background 1-hour and 8-hour CO concentrations. This is a conservative assumption, as the monitoring station is located in a congested area in Escondido. CO concentrations in the future may be lower, as inspection and maintenance programs and more stringent emission controls are placed on vehicles. Refer to Appendix C of this EIR for additional discussion regarding the CO "hot spots" analysis methodology and Appendix A of the Air Quality Impact Assessment for the CALINE4 model outputs.

Table 2.2-14 provides a summary of predicted CO concentrations (impact plus background) at the intersections projected to operate at LOS E or F due to Project traffic. As shown in the table, the predicted CO concentrations are below the 1-hour and 8-hour NAAQS and CAAQS for CO. Therefore, no exceedances of the CO standard are predicted, and the Project would not cause or contribute to a violation of an air quality standard, pursuant to Significance Guideline No. 2, and impacts would be **less than significant**.

Generation of Diesel Emissions and Toxic Air Contaminants (Significance Guideline No. 4)

Vehicular traffic may result in minor amounts of toxic air contaminants (TACs). Based on the County of San Diego's requirements, a quantitative evaluation of the potential for risks associated with exposure to diesel particulate emissions generated by vehicles from the proposed residences must be conducted.

Based on EMFAC2007 outputs for 2010 and considering only light duty autos and light duty trucks, the total percentage of trips for diesel light duty autos is approximately 0.1 percent, and the total percentage of trips for diesel light duty trucks is approximately 0.2 percent. Therefore, there are approximately four trips per day out of 4,590 total light duty auto trips that would be attributable to

diesel light duty autos, and approximately three trips per day out of 1,294 total light duty truck trips that would be attributable to diesel light duty trucks. The risk assessment evaluated impacts from traffic traveling one mile out from the development, along two alternative routes. Based on the TIA, approximately 2,295 trips would travel on Ash Street eastward from the Project site, and approximately 2,530 trips would travel southward on Montecito Way from the development. Based on these traffic estimates, approximately two light-duty diesel auto trips and one diesel light duty truck trip per day would travel on Ash Street, and approximately two light duty diesel auto trips and two light duty diesel truck trips per day would travel on Montecito Way.

Potential impacts to sensitive receptors were evaluated based on the SCAQMD's "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions" (SCAQMD 2002). According to the Guidance, the ISCST3 model should be used to estimate impacts associated with diesel particulate exhaust emissions. The guidance recommends the use of multiple adjacent volume sources to represent emission sources along the roadway; therefore, to model the potential impacts associated with emissions of diesel particulates from light duty autos and light duty trucks (vehicles from the proposed residences), a series of volume sources was placed along both roadways (Ash Street and Montecito Way). Each of the volume sources was assumed to be 164 feet by 164 feet, and was assumed to be at ground level. Emissions were divided among the volume sources equally and were calculated to be 2.78×10^{-5} lbs/day per source along Ash Street, and 3.35×10^{-5} lbs/day per source along Montecito Way. Annual average concentrations were calculated at each sensitive receptor identified in the Project vicinity.

The Hot Spots Analysis and Reporting Program (OEHHA 2003b) was used to estimate the high-end excess cancer risks associated with exposure to diesel particulates from vehicles. The high-end excess cancer risk was calculated based on guidance from the OEHHA (2003a), using the 80^{th} percentile exposure assumptions for inhalation risks (ARB 2003). The risks were calculated based on 70 years of exposure in a residential scenario. The maximum excess cancer risk associated with exposure to diesel particulate from Project-generated trips was estimated to be 0.0107 in 1 million, which is below the San Diego County's significance threshold of 1 in 1 million without T-BACT, pursuant to Significance Guideline No. 4; impacts would be **less than significant**. Impacts that are farther from the roadway would be lower still as concentrations decrease with increasing distance from the roads.

Generation of Odors (Significance Guideline No. 5)

Sewer Pump Stations

Wastewater pump stations have the potential for odors to result from stagnation of wastewater in the wet well of the pump station (moving wastewater has negligible odor potential). The proposed system is designed to pump out several times per hour, and two redundant pumps would be supplied to ensure one pump is running even if the other is in need of repair. An emergency generator would supply power during a power outage to maintain the wastewater flow out of the pump station. Pump station odors, if/when they occur, would be confined to the immediate vicinity of the pump station for the limited volume of effluent generated by the Proposed Project. A chemical addition system, proposed at part of Project design considerations, would inject an oxidizing chemical such as hypochloride (bleach) if objectionable odors are generated within the wet-well.

A submerged wet well with frequent and reliable pump-out has no adverse odor potential except within the pump station vault itself. A back-up chemical injection system would be included for

further odor control redundancy. Therefore, sewer pump station odors would be **less than significant**, pursuant to Significance Guideline No. 5.

WRF (Wastewater Management Option 2 only)

Assessing odor impacts depends upon such variables as wind speed, wind direction, and the sensitivities of receptors to different odors. Wastewater treatment plants can produce odors considered to be unpleasant. These gases, principally hydrogen sulfide (H_2S), are generated as a result of the anaerobic decomposition (decay in the absence of oxygen) of organic matter. Other odor compounds may include organic and inorganic compounds of sulfur including mercaptans, ammonia, amines, and organic fatty acids. According to the EPA, odors are released from both wastewater handling and biosolids production (EPA 2000). Odor compounds may be released from raw wastewater during influent pumping, aeration, and handling of biosolids (sludge). Odor compounds are formed during biosolids treatment through heat, aeration, and digestion. Anaerobic digestion of primary wastewater residuals can produce H_2S and other sulfur-containing gases. Alkaline stabilization of the solids volatilizes ammonia and other volatile compounds. Composting odors can be caused by ammonia, amines, sulfur-based compounds, fatty acids, and aromatic hydrocarbons. Aerobically digested biosolids can produce mercaptans and dimethyl sulfide.

According to the sewer service report (Dexter Wilson 2006), the Proposed Project would generate approximately 109,510 gpd of wastewater under Wastewater Management Option 2 for treatment by the WRF. The WRF is designed to handle the average flow as well as a peak flow of approximately 406,000 gpd of wastewater. The WRF would be located in the southwestern portion of the Project site along Montecito Ranch Road, across from the historical park site and south of the charter high school site. The WRF would include an influent pump station, influent screening, aeration-activated sludge process, tertiary filters, a chlorine contact tank, non-compliant effluent storage tank, and an aerobic digestion and dewatering system. The facility also would include a diesel emergency power generator and diesel storage tank, spill containment system, and treated effluent disposal fields (a total of 16.9 acres of land). Solids would be screened from the sludge and hauled from the site once or twice per week. The facility would be designed to minimize odors, including the addition of water, chemicals or activated carbon, as required. The facility would include an activated sludge process for secondary treatment of effluent. Once the effluent undergoes secondary treatment, odors would be minimized.

Emission factors for odor compounds from wastewater treatment plants are not generally available. For the purpose of evaluating the potential for odor impacts to sensitive receptors, data from the Bay Area Air Quality Management District's (BAAQMD's) Toxic Air Contaminant 2000 Annual Report were reviewed to determine estimated emissions of odor compounds including ammonia and H_2S. The BAAQMD's Toxic Air Contaminant 2000 Annual Report presents reported TAC emissions from the San Jose/Santa Clara Water Pollution Control facility in San Jose, California (BAAQMD 2001). The facility is similar to that proposed for the Montecito Ranch development in that it treats and cleans wastewater using secondary and tertiary treatment processes. The facility uses biological filters for odor control, and processes sludge. The facility is much larger than the proposed wastewater treatment facility, however, in that it treats a maximum capacity of 167 million gpd of wastewater, as opposed to 110,000 gpd.

To estimate emissions for the proposed WRF, it was assumed that odor compound emissions not eliminated based on dissimilar sources would be emitted in proportion to the capacity at the San

Jose/Santa Clara Water Pollution Control facility. Reported H_2S emissions from the San Jose facility in 2001 were 8,000 pounds/year (BAAQMD 2001). The potential H_2S emissions from the proposed WRF are therefore estimated to be approximately 5.27 pounds per year (based on the ratio of 110,000 gpd treated at the Montecito Ranch facility versus 167 million gpd treated at the San Jose/Santa Clara Water Pollution Control Facility, times emissions from the San Jose/Santa Clara Water Pollution Facility of 8,000 pounds per year of H_2S).

The nearest receptors would be the charter high school site and approximately 300 feet from the WRF based on the location of existing residences to the south and southeast of the Project site. The treatment plant was modeled as an area source approximately 10,000 square feet in area based on the size of the plant (100 feet by 100 feet). The modeled concentration at 300 feet from the facility was 0.5296 $\mu g/m^3$, which is equivalent to 0.000746 ppm. The odor threshold for H_2S is 0.0081 ppm; thus, the concentration at the nearest sensitive receptor would be approximately 11 times lower than the odor threshold. Odor impacts would be **less than significant**.

~~Reclaimed Water~~Effluent for Irrigation and Spray Field

Reclaimed water (effluent) is water that has been through some treatment processes to remove solid material and other odor sources, but is not classified as potable water. Effluent from the WRF would undergo a tertiary treatment process and meet Title 22, Division 4 of the California Administrative Code for unrestricted irrigation reuse. No odors would be associated with the effluent. The Proposed Project would use ~~reclaimed water~~effluent for on-site irrigation. As discussed in Subchapter 1.1, Project Description and Location, all of the ~~reclaimed water~~effluent generated by the WRF would used for irrigation, as there would be approximately 50 acres of landscaping and only enough ~~reclaimed water~~effluent for irrigation of 41 acres. In the event that there is excess ~~reclaimed water~~effluent (e.g., when demand is low due to rainfall, or prior to school construction, etc.), it would be distributed over the proposed spray field. ~~Reclaimed water~~Effluent is used throughout the region for irrigation and is not associated with odor impacts. Therefore, odor impacts associated with the use of ~~reclaimed water~~effluent on site would be **less than significant**.

Equestrian Facilities

There may be a small potential for odors from the equestrian staging area and the residential lots that would be allowed to keep horses (lots 1 through 30) to affect receptors. The equestrian facilities would be located within the southern portion of the historic park site. Equestrian activities would include equestrian events and staging for nearby trails. The school site, which is the nearest sensitive receptor to the equestrian facilities, is over 300 feet away. While some odors may be generated from equestrian wastes, because no horse boarding would occur at the equestrian facilities and larger events would be more likely to occur on weekends when school is not in session, odor impacts to the school would not be significant. The nearest off-site sensitive receptors are located approximately 600 feet away and would be unlikely to experience a significant adverse effect from the facilities. Furthermore, there is an existing equestrian facility to the south of the Project site, and existing agricultural operations in the area surrounding the southern end of the Proposed Project development. The proposed equestrian facilities would not result in appreciably different odor impacts from existing conditions; odor impacts associated with the equestrian staging area would be **less than significant**.

The residents of lots 1 through 30 would be allowed to keep up to two horses per lot; no major equestrian operations would be allowed. Two off-site houses are located adjacent to these lots. Because of the limitation of a maximum of ~~four~~ two horses per lot and because maintenance (including

clean up) associated with horse facilities on residential lots would be subject to Covenants, Conditions and Restrictions to be established by the HOA, it is unlikely that the horses on these lots would result in significant odors to adjacent off-site residents. Thus, the Project's odor impacts associated with equestrian uses would be **less than significant** in comparison with existing conditions at the site.

Diesel Odors

Diesel odors would occur during Project grading and would therefore cause a temporary nuisance impact to residents located down wind from each development unit (phase) as grading progresses. Impacts would occur during daytime hours only, primarily Monday through Friday. Due to their temporary, intermittent character, these impacts have been assessed as **less than significant.** Short-term impacts to local air quality associated with construction vehicle diesel emissions are addressed above.

Off-site Odors

No nearby off-site sources of odors have been identified that could adversely impact future Montecito Ranch residents; impacts would be **less than significant**.

Global Climate Change (Significance Guideline No. 6)

A consideration in the analysis of GHG emissions is those emissions that are under the operational control of the Project Applicant. The concept of operational control is embodied in the GHG Protocol, the most widely used international accounting tool for government and business leaders to understand, quantify and manage GHG emissions. The GHG Protocol Initiative, a decade-long partnership between the World Resources Institute and the World Business Council for Sustainable Development is working with businesses, governments, and environmental groups around the world to build a new generation of credible and effective programs for tackling climate change. The GHG Protocol provides the accounting framework for nearly every GHG standard and program in the world – from the International Standards Organization to the European Union Emissions Trading Scheme, to the California Climate Registry, as well as hundreds of GHG inventories prepared by individual companies.

The GHG Protocol Corporate Standard provides standards and guidance for companies and other organizations preparing a GHG emissions inventory. The standard is written primarily from the perspective of a business developing a GHG inventory. The GHG Protocol states that policy makers and architects of GHG programs can also use relevant parts of the GHG Protocol Corporate Standard as a basis for their own accounting and reporting requirements.

The protocol divides GHG emissions into three scopes, ranging from GHGs produced directly by the business to more indirect sources of GHG emissions, such as employee travel and commuting. The direct and indirect emissions are separated into the following three broad scopes:

- Scope 1 - All direct GHG emissions.
- Scope 2 - Indirect GHG emissions from consumption of purchased electricity, heat, or steam.
- Scope 3 - Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the

reporting entity, electricity-related activities (e.g., transmission and distribution [T&D] losses) not covered in Scope 2, outsourced activities, waste disposal, etc.

The GHG Protocol Corporate Standard has established two approaches for corporate reporting of GHG emissions: equity share and control approaches. Under the equity share approach, a company accounts for GHG emissions from operations according to its share of the equity of the operation. This approach is not considered to be applicable for a development project such as the Proposed Project. Under the control approach, a company accounts for 100 percent of the GHG emissions over which it has control. Control can be defined in either financial or operational terms. A company is considered to have financial control over the operation if it has the ability to direct the financial and operating policies with the view of gaining economic benefits from its activities. A company has operational control over an operation if it has full authority to introduce and implement its operating policies as part of its business activities. This concept is consistent with current accounting and reporting practice of many companies that report on emissions from facilities that they operate.

For purposes of analysis in this EIR, the concept of operational control has been adopted as the one that most applies to applicants of a development project such as the Proposed Project. The developers/builders will have operational control over certain project factors that generate GHG emissions. These include natural gas, purchased electricity, and energy embodied in water use. Developers/builders are not considered to have operational control over transportation emissions since they do not control emissions standards for vehicles, vehicle purchase choices, or driving habit~~at~~s of residents.

Emissions Inventory

GHG emissions associated with the Proposed Project were estimated separately for four categories of emissions: (1) residential development, (2) charter high school, (3) water consumption, and (4) transportation. The emissions inventory was then categorized according to emissions over which the Project Applicant was considered to have operational control. These include emissions associated with use of natural gas, purchased electricity, and energy embodied in water use. As previously noted, the Project Applicant is not considered to have operational control over transportation emissions. A variety of state programs are in place to address transportation emissions, as discussed below.

The California Renewable Portfolio Standard is a state policy that requires electricity providers to obtain a minimum percentage of their power from renewable energy resources by a certain date. The inventory assumed full implementation of the California Renewable Portfolio Standard (20 percent renewable electric power by 2017 and 33 percent by 2020). A utility company reduces GHG emissions by replacing fossil fuel-generated energy with GHG-free sources, such as wind and photovoltaics. This is a baseline estimate assuming Title 24-compliant buildings and mandated improvements in the statewide electricity supply (e.g., implementation of an expanded Renewable Portfolio Standard). Since California already generates about 10 percent of its electricity consumption by renewables, the new law will nearly double the state's existing base of wind, geothermal, biomass, and solar energy resources. For conservative modeling purposes, it was assumed that an additional 10 percent reduction in GHG would be achieved through implementation of the California Renewable Portfolio Standard.

Emissions were estimated based on emission factors from the California Climate Action Registry (CCAR) General Reporting Protocol (2007). The complete emissions inventory is summarized below and included as an appendix to the Air Quality Technical Report.

Residential Emissions. The Project proposes to develop 417 residential dwelling units. According to the CEC (2006), the average annual residential energy use rate is 5,914 kWh per residential unit. Emissions associated with energy use from the charter high school were estimated based on SCAQMD estimates for energy use (SCAQMD 1993). Natural gas use was estimated based on average gas consumption per square foot as reported by (SCAQMD 1993). Natural gas consumption was multiplied by the California Climate Action Registry emission factors for CO_2 Eq. per therm. CO_2 emissions for household and school electricity and natural gas use were combined and converted to metric tons for reporting.

Water. Water use and energy use are often closely linked. The provision of potable water to commercial users and residents consumes large amounts of energy associated with five stages: source and conveyance, treatment, distribution, end use, and wastewater treatment. This inventory estimated that delivered water for the Project would have an embodied energy of 2,779 kWh/acre foot or 0.0085 kWh/gallon (Torcellini et al. 2003). Water demand estimates were based on estimates for the Proposed Project. GHG emissions were calculated based on an average consumption of 294,552 gallons per day. The embodied energy demand associated with this water use was converted to GHG emissions with the same electrical grid coefficients as the other purchased electricity.

Transportation. Mobile source GHG emissions were estimated for the community's residential population. Mobile source emissions for this GHG inventory were estimated based on the Project TIA (USAI 2008). The study estimated future ADT generation per neighborhood within the community. Information from the U.S. Census Bureau was used to estimate average trip length for southern California residents in 2020. Based on trends over the last 20 years, a long-term average increase in vehicle miles traveled of 1.6 percent per year was assumed, which yields a 2020 average trip length of 6.12 miles from a 2007 estimate of 4.98 miles per trip. The ADT was multiplied by the average distance per trip to estimate total annual vehicle miles traveled, which would total approximately 12.5 million vehicle miles per year for all future residents of the Project. Emissions of GHG were estimated using the EMFAC2007 emission factors for vehicles.

As previously noted, transportation emissions are not considered to be under the operational control of the Project Applicant. These emissions will, however, be regulated by standards currently being required and implemented at the state level. Standards that will apply to the Proposed Project are summarized in Table 2.2-16.

Construction Emissions. Construction emissions for criteria pollutants are analyzed in detail above. Based on emission factors from the OFFROAD model for heavy construction equipment, and from the EMFAC2007 model for on-road vehicles, total greenhouse gases associated with construction are estimated at 19,228 tons (17,444 metric tons) of CO_2 total for the duration of construction.

Carbon Capture. The Project also would remove existing vegetation from the site that temporarily stores carbon as part of the terrestrial carbon cycle. Over time, residential landscaping and soils may increase carbon storage compared to predevelopment conditions; however, these gains may be offset by vegetation and soil storage lost to more extensive impervious surface areas or the potential for wildfire in the area. It is difficult to predict the net change, but it is expected to be relatively small.

Anticipated Emissions Reductions with Project Design Features. Project design features proposed by the Project Applicant are presented in Table 2.2-17. As shown in the table, a wider range of Project design features are incorporated in the Project ranging from water use efficiency to building energy efficiency and landscaping, to smart growth land use patterns, solid waste diversion, and education.

The results of the inventory for emissions under the operational control of the Project Applicant are presented in Table 2.2-18. These include GHG emissions associated with buildings (i.e., natural gas, purchased electricity) and landscaping (i.e., energy embodied in potable water use). Table 2.2-18 summarizes projected emissions using the methodologies noted above for the emissions inventory and presents anticipated reductions based upon the incorporation of project design features proposed by the Project Applicant.

Under Wastewater Management Option 2, the Proposed Project would generate approximately 123 acre-feet per year of ~~reclaimed water~~effluent, which amounts to approximately 110,000 gallons per day. All ~~reclaimed water~~effluent would be used for Project landscaping, thus eliminating the need to import this amount of water. In addition, water efficiency measures included in the Project design would include low-flow appliances, a drought-tolerant landscape palette, weather-based irrigation controllers, and other water conservation measures that would result in a 50 percent reduction in water use over "business as usual."

Building energy efficiency measures include overall building energy performance equivalent to 10 percent below current Title 24 standards. This would be achieved through a variety of measures in the design of the residences. The residents at Montecito Ranch would be offered a choice of energy efficient appliances (including washers, dryers, and refrigerators) and appliances installed by builders would be Energy Star (including dishwashers).

The use of smart growth land use patterns that reduce the amount of land being developed would reduce GHG emissions. In addition, the Proposed Project includes pedestrian, bicycle, and equestrian trails that connect with the Ramona trail system and encourage alternative transportation to commercial centers in Ramona. The Project Applicant also would provide educational materials for residents discussing strategies to reduce GHG emissions consistent with ARB's Early Action Guidance regarding reduction of GHG emissions.

Summary of Impacts

The Proposed Project would generate GHG emissions associated with natural gas, purchased electricity and energy embodied in water. Project design features are incorporated in the Project to reduce GHG emissions under the operational control of the Project Applicant. Significant direct impacts associated with those emissions are not anticipated due to features incorporated in the project that would result in a greater than 20 percent reduction in emissions compared to "business as usual." Accordingly, impacts associated with global climate change would be **less than significant**.

Climate change may affect the Project by potentially increasing the risk of wildfire hazard and affecting water supply reliability (refer to Sections 4.1.4, Hazards and Hazardous Materials, and 4.1.5, Utilities/Service Systems, respectively). It is not possible to quantify or forecast these effects at this time.

~~Analysis of Effects Associated With SA 330 Extension~~

~~This analysis is applicable only to the projected extension of SA 330 from Montecito Road to SR 67. Buildout of this roadway is not part of the Proposed Project, but would be implemented by another entity in the future.~~

~~The construction of the relocated SA 330 extension would **not result in a significant impact** associated with VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$ emissions. Roadway construction would result in CO_2 and other GHG emissions. Because construction of relocated SA 330 would not result in an increased number of vehicles or houses, however, but would provide a more efficient route for existing and planned vehicle movements, adverse impacts overall associated with emissions are not expected. Impacts associated with GHG emissions would be **less than significant**. The reader is referred to Section 5.8.6, Extension of SA 330 Design Scenario Alternative, for additional analysis associated with the construction of the SA 330 extension.~~

2.2.4 Cumulative Impact Analysis

Air Quality

The focus of the cumulative analysis is placed on the SDAB as a whole because emissions from the Proposed Project along with other pending cumulative projects all mix within this basin. In analyzing cumulative impacts from a proposed project, the analysis specifically must evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "nonattainment" for the State AAQS, as required by the County's Guidelines for Determining Significance for Air Quality. As previously stated, the SDAB is currently classified as a nonattainment area for PM_{10} and O_3 with regard to the CAAQS. A project that has a significant impact on air quality with regard to emissions of PM_{10}, NO_X and/or VOCs as determined by the screening criteria outlined above would have a significant cumulative effect. In the event direct impacts from a project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed, or reasonably foreseeable, future projects are in excess of screening levels identified above~~, and the project's contribution accounts for an insignificant proportion of the cumulative total emissions~~.

With regard to past and present projects, the background ambient air quality, as measured at the monitoring stations maintained and operated by the APCD, measures the concentrations of pollutants from existing sources. Past and present project impacts are therefore included in the background ambient air quality data. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. Of the 116 cumulative projects listed in Tables 1-8 and 1-9, only 19 projects are within one mile of the Project site and could be constructed at the same time as the Proposed Project (refer to Figure 1-42). Although none of the 19 other projects is under the control of the Project Applicant, and it is not possible to determine grading schedules of the projects, it is unlikely that all construction would be occurring at the same time as the Proposed Project. Most (10) of the projects are minor lot splits or small (i.e., 5 lots or less) subdivisions. The largest project within one mile

(Teyssier) would contain 36 lots; the next "largest" project (Stonecrest) would have 14 lots. The projects were all identified as having less than significant air quality impacts. The larger projects in the vicinity of the project site are not on the same construction schedule and would not undergo mass grading at the same time as the Proposed Project. Because fugitive dust impacts are localized, and because the projects listed above are generally small, the fugitive dust generated from their grading plus the fugitive dust from the Project grading phase would not be above the significance thresholds and would therefore not result in a cumulative PM_{10} impact. Furthermore, all projects would be required to comply with the County's grading ordinance, which requires implementation of dust control measures to reduce fugitive dust generated during grading. These considerations combine to result in a **less than significant** cumulative air quality impact for PM issues.

As discussed in the TIA, DPW and DPLU identified 80 projects that could contribute to cumulative impacts in the Ramona area. Of these projects, 49 were identified in the Project TIA as potentially contributing to traffic. These projects were included in the cumulative traffic impacts, and thus in the CO "hot spots" modeling. Based on the CO "hot spots" evaluation, **no cumulative impact** associated with traffic emissions is anticipated.

With regard to cumulative impacts associated with O_3 precursors (NO_x and VOCs), in general, provided a project is consistent with the community and general plans, it has been accounted for in the O_3 attainment demonstration contained within the SIP and would not cause a cumulatively significant impact on the ambient air quality for O_3. An evaluation was conducted of the Project's consistency with SANDAG's housing forecast for San Diego County to determine the Project's consistency with the RAQS and SIP. Nonetheless, because the Project's VOC emissions during construction would be above the significance threshold, the Project would have a cumulatively significant, but temporary, impact on air quality. **(Significant Impact No. 2.2.4a)**

The Proposed Project is located in SANDAG's East Suburban Major Statistical Area, in the Ramona Subregional Area. The projected housing growth from 2000 to 2030 is 123,405 housing units for the Major Statistical Area and 20,352 housing units for the Ramona Subregional Area. The Project is proposing to construct 417 housing units, which is consistent with the RCP allowable density for the Project site and would comprise only 2.05 percent of the total projected housing growth in the Ramona Subregional Area, and only 0.34 percent of the total projected housing growth in the East Suburban Major Statistical Area. The cumulative projects previously listed in Table 1-8 account for an additional 1,026 housing units in the Ramona area. Thus, the cumulative growth accounts for only 5.46 percent of the total projected growth in the Ramona Subregional Area and would therefore be consistent with the 2030 Cities/County Forecast for housing growth. The Proposed Project would be consistent with the maximum allowable development for the site as specified within the RCP and is within growth forecasts for the region, and would therefore be in conformity with the RAQS and SIP; impacts therefore would be **less than significant**.

Odors

Odor impacts from the project would be less than significant. As there is no existing regional cumulative odor issue, the contribution from the Project would not cause or contribute to a cumulative odor impact. Therefore, cumulative odor impacts would be **less than significant**.

Global Climate Change

Forecasts for GHG emissions in the SDAB and California currently are not available. As noted above, it is estimated that California produces about 7 percent of U.S. GHG emissions with approximately 41 percent of those emissions related to transportation and approximately 22 percent related to electricity. The statewide emissions inventory to be completed by ARB by July 1, 2008, as required by AB 32, may be helpful in establishing a baseline forecast for analysis of GHG emissions in CEQA documents.

Implementation of the Proposed Project would result in GHG emissions as discussed above in Section 2.2.3. Significant direct impacts associated with those emissions are not anticipated due to features incorporated in the Project that would result in a greater than 20 percent reduction in emissions compared to "business as usual." Projected GHG reductions would exceed AB 32 guidelines by providing reductions greater than 20 percent below "business as usual." The Project also would comply with any state-mandated requirements resulting from AB 32 and the statewide emissions inventory expected to be completed by January 2008, as well as any County requirements resulting from the GP 2020 process. Project-specific reductions below the AB 32 guidelines and compliance with ~~future~~ current statewide and County programs would **avoid significant cumulative impacts** of the Project on GHG emissions.

~~2.2.5 Effects Found Not to be Significant (Conformance with RAQS and SIP, Short-term Construction Emissions, Long-term Operation CO Hot Spots, Generation of Diesel Emissions and Toxic Air Contaminants, Generation of Odors, and Global Climate Change)~~

~~As stated above, the Project site is designated as a Specific Plan area within the RCP area and the Project is consistent with development goals within the RCP. The regional air quality plan is based upon the expected level of development for the area. The RCP specifies development of up to 417 units, as proposed, within the Montecito Ranch site, and the Proposed Project is consistent with SANDAG growth forecasts for the area. Therefore, the Proposed Project would conform with the RAQS and SIP; **no impacts** would occur.~~

~~Per the discussion above regarding construction period emissions effects related to use of heavy construction equipment operating at the site, worker commutes, asphalt off-gassing, and fugitive dust generated during grading activities, a number of criteria pollutants were found not to result in significant impact. Fugitive dust effects were assessed using URBEMIS (Version 9.2.2) modeling and assume project design mitigative measures detailed in this subchapter, as well as on Table 1.7 and in the "List of Mitigation Measures and Environmental Design Considerations" located at the end of this EIR. PM_{10} and $PM_{2.5}$ generation were both well under the screening level thresholds (approximately 38 and 50 percent under, respectively for rough grading, the most impactive period for dust generation). Construction period impacts associated with ROG, NO_x, CO and SO_x were similarly found to be less than significant during rough grading, construction of underground utilities and surface improvements, roadway improvements, house construction, and (potential) construction of the WRF (Tables 2.2-3 through 2.2-9). Each of these construction period emissions of criteria pollutants, for both project direct and cumulative conditions, would be **less than significant.**~~

~~Assuming design measures specified in the Section 2.2.3 of this subchapter as well as on Table 1-7 and on the list noted in the above paragraph, the EPA's approved dispersion model for analysis of exposure~~

to diesel exhaust, the maximum excess cancer risk predicted at the closest receptors to the construction site during construction would be 0.78 in 1 million under Wastewater Management Option 1, and 0.86 in 1 million assuming the WRF. These values are below the County's significance threshold of 1 in 1 million without application of T-BACT would be **less than significant**.

As discussed above, localized vehicular exhaust emissions adjacent to seven intersections (including Ash Street/Pine Street, Pine Street/Olive Street, Pine Street/Main Street, Main Street/Pine Street, Main Street/Montecito Way, SR 67/Highland Valley Road/Dye Road, and SR 67/Archie Moore Road) were analyzed for potential CO concentrations. The forecasted one-hour and eight-hour CO levels with and without the Proposed Project were below the applicable air quality standards. As shown in Table 2.2-14, the predicted CO concentrations are below the 1-hour and 8-hour NAAQS and CAAQS for CO. Therefore, no CO hot spots would result from the Proposed Project and **no associated impacts** would occur. Similarly, cumulative projects were included within the hot spots modeling. No cumulative impact is anticipated for this issue; effects would be **less than significant.**

The results of the impact analysis also were used to estimate the operational diesel exhaust particulate exposure adjacent to Project site access roadways and the CO calculations were adjusted to convert to an equivalent diesel particulate matter exhaust exposure. The resulting cancer risk factor was determined to be 0.0107 in 1 million. Because this projected level is less than the 1 in 1 million significance guideline, Project-related and cumulative diesel exhaust emissions are not expected to have a measurable health impact on the surrounding community, and would be **less than significant**.

Long-term operational impacts associated with residential energy use, landscaping, architectural coatings, vehicular emissions, etc. also were evaluated. The specifics of the URBEMIS Model for these issues are discussed in Section 2.2.3 of this subchapter. As shown on Tables 2.2-11 and 2.2-12, emissions totals for ROG, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ would all be less than the screening level thresholds. Impacts would be **less than significant.**

Potential sources of objectionable odors associated with long-term operation of the Proposed Project would include stagnating sewage within the three on-site sewer pump stations under Wastewater Management Option 1 (two under Option 2), diesel emissions during construction, and wastewater treatment processes at the WRF, as discussed within the preceding section. A significant impact would have been assessed if the Proposed Project were anticipated to cause a frequent or persistent odor nuisance to on-site or adjacent sensitive residents, park users, and charter high school personnel/students. The proposed pump stations are designed to pump out several times per hour, and two redundant pumps would be supplied to continue running one pump even if the second is in need of repair. A submerged wet well with frequent and reliable pump-out has no adverse odor potential beyond the pump station interior; however, a chemical addition system is proposed to inject an oxidizing chemical such as hypochloride (bleach) if objectionable odors are generated within the wet-well. Odor impacts associated with the proposed pump stations would be **less than significant**.

The potential for odorous emissions was calculated above for H_2S, which is the emissions compound from wastewater treatment that is easily detected by humans, and it was determined that levels of H_2S at the nearest sensitive receptors (i.e., the future charter high school site and existing homes approximately 300 feet south and southeast of the WRF). The potential H_2S concentration at the nearest sensitive receptor was calculated to be approximately 11 times lower than the odor threshold of 0.0081 ppm. Odor impacts from the WRF would be **less than significant**.

~~Odors would be generated from equestrian wastes; however, sensitive receptors (i.e., students and staff of the nearby school and off-site residents) would be a minimum of approximately 500 feet away from the equestrian facilities and would be unlikely to experience a significant adverse effect from the equestrian facilities. Two off-site houses are located adjacent to proposed residential lots that would be allowed to keep horses. Because of the limitation of two horses per lot, it is unlikely that the horses on these lots would result in significant odors to adjacent off-site residents. As stated previously, odor impacts from the Project's equestrian uses would be **less than significant** in comparison with existing conditions at the site.~~

~~Diesel odors would occur during Project grading and would therefore cause a temporary nuisance impact to residents located down wind from each development unit (phase) as grading progresses. Impacts would occur during daytime hours only, primarily Monday through Friday. Due to their temporary, intermittent character, these impacts have been assessed as **less than significant.** Short-term impacts to local air quality associated with construction vehicle diesel emissions are addressed above.~~

~~No nearby off-site sources of odors have been identified that could adversely impact future Montecito Ranch residents; impacts would be **less than significant**.~~

~~Project design features are incorporated in the Project to reduce GHG emissions under the operational control of the Project Applicant. Significant direct impacts associated with those emissions are not anticipated due to features incorporated in the project that would result in a greater than 20 percent reduction in emissions compared to "business as usual." Similarly, compliance with future statewide and County programs would avoid significant cumulative impacts of the Project on GHG emissions. Accordingly, impacts associated with global climate change would be **less than significant**.~~

2.2.~~6~~5 Mitigation Measures Proposed to Minimize the Significant Effects

Mitigation for Significant Impact No. 2.2.3a

In order to mitigate temporary project-direct air quality impacts related to VOC emissions to less than significant levels:

- The Project will be required to paint less than one house per day.

As noted on Table 1-7 and in the "List of Mitigation Measures and Environmental Design Considerations" located at the back of this EIR, where possible, the Project has incorporated use of low-VOC coatings that meet the requirements of APCD Rule 67.0 as a matter of project design. (Coatings generally would be water-based and typically meet a VOC content of 150 grams per liter or less, except for specialty coatings that may be needed in minor amounts on trim.) Implementation of this design consideration alone, however, would not reduce potential impacts to less than significant levels.

Implementation of the mitigation measure noted above, stretching residential painting over a period of approximately two years, is considered excessive for these temporary effects (i.e., it is not capable of being accomplished within a reasonable period of time, taking into account economic and technological factors), and there is no additional feasible mitigation to effectively reduce short-term

impacts to below a level of significance. VOC emissions related to architectural coatings during construction for the Proposed Project would be significant and unmitigable. ~~:~~

Mitigation for Significant Impact No. 2.2.4a

Because emissions would remain above the significance threshold for VOCs, which are ozone precursors, the following mitigation measure will be implemented to reduce emissions from heavy equipment:

- The Project will require 10 percent of the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters, and/or ARB certified Tier I, II, or III equipment.

Ten percent was determined to be a reasonable requirement based on the amount of contractors whose fleets have already been retrofitted and engines repowered as a result of the local and neighboring Carl Moyer Programs. With use of 10 percent of the construction fleet retrofitted and/or repowered and use of low-VOC coatings, the ~~p~~Project would mitigate emissions to the extent feasible.

2.2.~~7~~6 Conclusion

As detailed in the analysis in Section 2.2.3 and summarized in Section 2.2.5 of this subchapter, no significant impacts were identified for number of project-related issues. The Proposed Project would employ the environmental design considerations listed in Section 2.2.3 of this subchapter, as well as Table 1-7 and at the back of the EIR in "List of Mitigation Measures and Environmental Design Considerations." The enumerated design considerations were integral to the impacts analysis.

The Project would comply with the strategies of the RAQS and SIP. Both construction-period and long-term operational emissions of ROG, NO_x, CO, SO_x, SO_2, PM_{10}, and $PM_{2.5}$ modeled under the screening level thresholds, and therefore would be less than significant. The potential for CO hot spots to form was identified as being less than significant, as was the potential for odor generation; during either construction or operational phases of the project. Risk for health effects due to diesel exhaust emissions during both construction and project operation was similarly found to be less than significant. Finally, GHG emissions were identified as less than significant due to incorporation of design features that would result in a more than 20 percent reduction in emissions compared to doing "business as usual."

VOCs generated during project construction, however, would exceed established thresholds. This would result in a temporary but significant air quality impact.

Although design considerations requiring use of low-VOC coatings where feasible have been incorporated into the Project, to comply with the noted VOC standard, the Project would need to substantially restrict the number of houses or the amount of painting that could be conducted in a single day with a corresponding increase in the duration of construction activities. It would require approximately two years to complete house painting. Such a limit is considered infeasible for the Project as proposed. As noted above, therefore, the Project also would remain above the significance threshold for VOCs, which are ozone precursors. As stated in Section 2.2.6 of this subchapter, the Project would require 10 percent of the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters, and/or ARB certified Tier I, II, or III equipment to mitigate this impact.

County DPLU has determined that conversion of 10 percent of the construction fleet comprises a reasonable (feasible) percent given cost prohibitions. Ten percent also was determined to be a reasonable requirement based on the number of contractors whose fleets have already been retrofitted and engines repowered as a result of the local and neighboring Carl Moyer Programs. With 10 percent of the construction fleet retrofitted and/or repowered and use of low-VOC coatings, the Project would mitigate emissions to the extent feasible.

In conclusion, all potentially significant effects related to air quality were found to be less than significant as a result of baseline review or due to implementation of project design restrictions or appropriate mitigation, with the exception of construction-period VOC emissions. Temporary impacts associated with VOC emissions during construction for the Proposed Project (Significant Impact No. 2.2.3a) would be significant and unmitigable and a Statement of Overriding Considerations would be required for this temporary impact.

Table 2.2-1
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		CONCENTRATION	METHOD	PRIMARY	SECONDARY	METHOD
Ozone	1 hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm[1] (235 µg/m^3)	0.12 ppm[1] (235 µg/m^3)	Ethylene Chemiluminescence
	8 hour	0.070 ppm (180 µg/m^3)		0.08 ppm (157 µg/m^3)	0.08 ppm (157 µg/m^3)	
Carbon Monoxide	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide	Annual Average	0.030 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (336 µg/m^3)		--	--	
Sulfur Dioxide	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m^3)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)		--	--	
Respirable Particulate Matter	24 hours	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	150 µg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--	--	
Fine Particulate Matter	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3	--	Inertial Separation and Gravimetric Analysis
	24 hours	--		65 µg/m^3	--	
Sulfates[3]	24 hours	25 µg/m^3	Ion Chromatography	--	--	--
Lead[3]	30-day Average	1.5 µg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	1.5 µg/m^3	
Hydrogen Sulfide Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	Gas Chromatography	--	--	--

ppm= parts per million
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
[1]The federal 1-hour standard for ozone was rescinded in early 2006.
[2]The 8-hour CAAQS for ozone was approved by the ARB on April 28, 2005, and became effective in early 2006.
[3]These pollutants are not monitored in San Diego County.
Source: ARB 2007

Table 2.2-2
AMBIENT BACKGROUND CONCENTRATIONS
(ppm unless otherwise indicated)

Pollutant	Averaging Time	2003	2004	2005	Most Stringent Ambient Air Quality Standard	Monitoring Station
O_3	8 hour	0.083	0.086	0.079	0.070	Escondido
	1 hour	0.105	0.099	0.095	0.09	Escondido
PM_{10}	Annual	32.7 $\mu g/m^3$	27.3 $\mu g/m^3$	22 $\mu g/m^3$	20 $\mu g/m^3$	Escondido
	24 hour	179 $\mu g/m^{3,2}$	57 $\mu g/m^3$	36 $\mu g/m^3$	50 $\mu g/m^3$	Escondido
$PM_{2.5}$	Annual	14.2 $\mu g/m^3$	14.1 $\mu g/m^3$	12.3 $\mu g/m^3$	12 $\mu g/m^3$	Escondido
	24 hour	69.2 $\mu g/m^{3,2}$	67.3 $\mu g/m^3$	43.1 $\mu g/m^3$	35 $\mu g/m^3$	Escondido
NO_2	Annual	0.020	0.012	0.011	0.030	Escondido
	1 hour	0.135	0.099	0.077	0.18	Escondido
CO	8 hour	10.64[2]	3.61	3.10	9.0	Escondido
	1 hour	12.7[2]	6.3	5.9	20	Escondido
SO_2	Annual	0.005	0.004	0.002	0.03	San Diego
	24 hour	0.008	0.008	0.007	0.04	San Diego
	3 hour	0.019	0.020	0.019	0.5[1]	San Diego
	1 hour	0.036	0.042	0.040	0.25	San Diego

[1] Secondary NAAQS
[2] Maximum measured pollutant concentrations occurring during the Cedar Fire event
Source: www.arb.ca.gov/aqd/aqd.htm (Measurements of all pollutants at Escondido East Valley Parkway station, except SO_2); www.epa.gov/air/data/monvals.html (1-hour and 3-hour SO_2 and 1-hour CO)

Table 2.2-3
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
Rough Grading

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
			Phase 1			
Fugitive Dust - Grading	-	-	-	-	49.90	10.42
Heavy Equipment Exhaust	86.83	25.63	123.00	43.68	11.25	10.01
Construction Truck Emissions	7.22	1.90	29.09	0.06	0.93	0.92
Worker Travel – Vehicle Emissions	25.72	1.33	2.45	0.02	0.17	0.17
TOTAL	**119.77**	**28.86**	**154.54**	**43.76**	**62.25**	**21.52**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
			Phase 2			
Fugitive Dust - Grading	-	-	-	-	38.70	8.08
Heavy Equipment Exhaust	86.83	25.63	123.00	43.68	11.25	10.01
Construction Truck Emissions	7.22	1.90	29.09	0.06	0.93	0.92
Worker Travel – Vehicle Emissions	25.72	1.33	2.45	0.02	0.17	0.17
TOTAL	**119.77**	**28.86**	**154.54**	**43.76**	**51.05**	**19.18**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-4
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
Phase 1 Underground Utilities and Surface Improvements

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
Underground Utilities						
Heavy Equipment Exhaust	66.31	21.86	71.53	26.11	6.71	5.97
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Worker Travel – Vehicle Emissions	33.43	1.74	3.19	0.02	0.22	0.22
TOTAL	**114.17**	**27.40**	**132.89**	**26.25**	**8.78**	**8.02**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Surface Improvements						
Heavy Equipment Exhaust	39.67	12.02	53.10	18.96	4.88	4.34
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Worker Travel – Vehicle Emissions	12.86	0.67	1.23	0.01	0.08	0.22
Asphalt Off-gassing	-	2.62	-	-	-	-
TOTAL	**66.96**	**19.11**	**112.50**	**19.09**	**6.81**	**6.39**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Landscaping						
Heavy Equipment Exhaust	11.46	3.96	10.58	3.94	1.01	0.90
Worker Travel – Vehicle Emissions	9.64	0.50	0.92	0.01	0.06	0.06
TOTAL	**21.10**	**4.46**	**11.50**	**3.95**	**1.07**	**0.96**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-5
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
Phase 2 Underground Utilities and Surface Improvements

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
Underground Utilities						
Heavy Equipment Exhaust	66.31	21.86	71.53	26.11	6.71	5.97
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Worker Travel – Vehicle Emissions	33.43	1.74	3.19	0.02	0.22	0.22
TOTAL	**114.17**	**27.40**	**132.89**	**26.25**	**8.78**	**8.02**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Surface Improvements						
Heavy Equipment Exhaust	39.67	12.02	53.10	18.96	4.88	4.34
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Worker Travel – Vehicle Emissions	12.86	0.67	1.23	0.01	0.08	0.22
Asphalt Off-gassing	-	2.62	-	-	-	-
TOTAL	**66.96**	**19.11**	**112.50**	**19.09**	**6.81**	**6.39**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Landscaping						
Heavy Equipment Exhaust	11.46	3.96	10.58	3.94	1.01	0.90
Worker Travel – Vehicle Emissions	9.64	0.50	0.92	0.01	0.06	0.06
TOTAL	**21.10**	**4.46**	**11.50**	**3.95**	**1.07**	**0.96**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-6
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
House Construction

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
			Phase 1			
Heavy Equipment Exhaust	13.02	4.43	12.67	4.68	1.20	1.07
Worker Travel – Vehicle Emissions	134.38	6.97	12.80	0.09	0.87	0.86
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Architectural Coatings	-	74.86	-	-	-	-
TOTAL	**161.83**	**90.06**	**83.64**	**4.89**	**3.92**	**3.76**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*Yes*	*No*	*No*	*No*	*No*
			Phase 2			
Heavy Equipment Exhaust	13.02	4.43	12.67	4.68	1.20	1.07
Worker Travel – Vehicle Emissions	134.38	6.97	12.80	0.09	0.87	0.86
Construction Truck Travel – Vehicle Emissions	14.43	3.80	58.17	0.12	1.85	1.83
Architectural Coatings	-	53.61	-	-	-	-
TOTAL	**161.83**	**68.81**	**83.64**	**4.89**	**3.92**	**3.76**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-7
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
Roadway Improvements

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
Grading						
Fugitive Dust - Grading	-	-	-	-	35.49	7.41
Construction Truck Travel – Vehicle Emissions	0.65	0.12	1.93	0.00	0.09	0.07
Heavy Equipment Exhaust	20.75	6.32	27.47	9.82	2.53	2.25
Worker Travel – Vehicle Emissions	154.31	8.01	14.70	0.11	1.00	0.99
TOTAL	**175.71**	**14.45**	**44.10**	**9.93**	**39.11**	**10.72**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Curbs and Gutters						
Heavy Equipment Exhaust	4.45	1.21	7.36	2.58	0.67	0.60
Worker Travel – Vehicle Emissions	154.31	8.01	14.70	0.11	1.00	0.99
Construction Truck Travel – Vehicle Emissions	7.22	1.90	29.09	0.06	0.93	0.92
TOTAL	**165.98**	**11.12**	**51.15**	**2.75**	**2.60**	**2.51**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Base/AC Paving						
Heavy Equipment Exhaust	6.20	1.68	10.24	3.59	0.93	0.92
Worker Travel – Vehicle Emissions	154.31	8.01	14.70	0.11	1.00	0.99
Construction Truck Travel – Vehicle Emissions	7.22	1.90	29.09	0.06	0.93	0.92
Asphalt Off-gassing	-	2.62	-	-	-	-
TOTAL	**167.73**	**14.21**	**54.03**	**3.76**	**2.86**	**2.83**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Signage/Striping						
Heavy Equipment Exhaust	4.37	1.47	4.44	1.63	0.42	0.42
Worker Travel – Vehicle Emissions	154.31	8.01	14.70	0.11	1.00	0.99
TOTAL	**158.68**	**9.48**	**19.14**	**1.74**	**1.42**	**1.41**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-8
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
Utilities and Houses Total

Construction Phase	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
Underground Utilities	114.17	27.40	132.89	26.25	8.78	8.02
House Construction (Phase 1)	161.83	90.06	83.64	4.89	3.92	3.76
TOTAL	**276.00**	**117.46**	**216.53**	**31.14**	**12.70**	**11.78**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*Yes*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-9
MAXIMUM DAILY ESTIMATED CONSTRUCTION EMISSIONS
WRF

Emission Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
			lbs/day			
Grading and Site Preparation						
Fugitive Dust – Grading	-	-	-	-	38.22	8.03
Heavy Equipment Exhaust	50.75	13.84	133.69	0.29	5.14	4.57
Worker Travel – Vehicle Emissions	34.84	1.61	3.28	0.03	0.28	0.28
Construction Truck Travel – Vehicle Emissions	12.26	3.21	45.33	0.12	1.58	1.56
TOTAL	**97.85**	**18.66**	**182.3**	**0.44**	**45.22**	**14.44**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Wastewater Treatment Plant Construction						
Heavy Equipment Exhaust	9.44	2.78	13.42	0.03	1.23	1.09
Worker Travel – Vehicle Emissions	34.84	1.61	3.28	0.03	0.28	0.28
Construction Truck Travel – Vehicle Emissions	12.26	3.21	45.33	0.12	1.58	1.56
TOTAL	**56.54**	**7.60**	**62.03**	**0.18**	**3.09**	**2.93**
Screening-Level Thresholds	550	75	250	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-10
DIESEL EXHAUST PARTICULATE EMISSIONS

Construction Phase	Diesel Particulate Emissions, tons	Days
Site Grading Emissions (without WRF)	0.85	483
Rough grading (with WRF)	0.06	25
Underground Utilities and Surface Improvements, Phase 1	0.45	610
Underground Utilities and Surface Improvements, Phase 2	0.45	610
House Construction	0.30	500
Roadway Improvements	0.11	195
WRF Construction	0.19	310

Source: Scientific Resources Associated 2008

Table 2.2-11
PROJECT-RELATED OPERATIONAL EMISSIONS
2010 Operations – Unit 1

	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Lbs/day, summer						
Residential Energy Use	0.24	3.04	1.30	0.00	0.01	0.01
Landscaping	1.96	0.12	10.85	0.03	0.03	0.03
Consumer Products Use	11.89	-	-	-	-	-
Architectural Coatings Use	1.57	-	-	-	-	-
Vehicular Emissions	20.13	26.58	244.39	0.20	16.77	3.75
TOTAL	**35.79**	**29.74**	**256.54**	**0.23**	**16.81**	**3.79**
Screening-Level Thresholds	75	250	550	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Lbs/day, winter						
Residential Energy Use	0.24	3.04	1.30	0.00	0.01	0.01
Fireplace Use	0.12	2.02	0.86	0.01	0.16	0.16
Consumer Products Use	11.89	-	-	-	-	-
Architectural Coatings Use	1.57	-	-	-	-	-
Vehicular Emissions	21.99	38.86	264.45	0.17	16.77	3.75
TOTAL	**35.81**	**43.92**	**266.61**	**0.18**	**16.94**	**3.92**
Screening-Level Thresholds	75	250	550	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Tons/year						
Residential Energy Use	0.04	0.56	0.24	0.00	0.00	0.00
Fireplace Use	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.18	0.01	0.98	0.00	0.00	0.00
Consumer Products Use	2.17	-	-	-	-	-
Architectural Coatings Use	0.29	-	-	-	-	-
Vehicular Emissions	3.79	5.60	45.82	0.03	3.06	0.68
TOTAL	**6.47**	**6.17**	**47.04**	**0.03**	**3.06**	**0.68**
Screening-Level Thresholds	13.7	40	100	40	15	10
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: URBEMIS Model Runs

Table 2.2-12
PROJECT-RELATED OPERATIONAL EMISSIONS
2015 Operations – Units 1 and 2

	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Lbs/day, summer						
Residential Energy Use	0.44	5.76	2.67	0.00	0.01	0.01
Landscaping	3.61	0.25	21.71	0.00	0.06	0.06
Consumer Products Use	20.40	-	-	-	-	-
Architectural Coatings Use	2.84	-	-	-	-	-
Vehicular Emissions	37.23	41.66	396.60	0.50	41.41	9.07
TOTAL	**64.52**	**47.67**	**420.98**	**0.50**	**41.48**	**9.14**
Screening-Level Thresholds	75	250	550	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Lbs/day, winter						
Residential Energy Use	0.44	5.76	2.67	0.00	0.01	0.01
Fireplace Use	0.20	3.46	1.47	0.02	0.28	0.28
Consumer Products Use	20.40	-	-	-	-	-
Architectural Coatings Use	2.84	-	-	-	-	-
Vehicular Emissions	35.17	60.85	418.56	0.43	41.41	9.07
TOTAL	**59.05**	**70.07**	**422.70**	**0.45**	**41.70**	**9.36**
Screening-Level Thresholds	75	250	550	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Tons/year						
Residential Energy Use	0.08	1.05	0.49	0.00	0.00	0.00
Fireplace Use	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.32	0.02	1.95	0.00	0.01	0.01
Consumer Products Use	3.72	-	-	-	-	-
Architectural Coatings Use	0.52	-	-	-	-	-
Vehicular Emissions	6.67	8.77	73.72	0.08	7.56	1.66
TOTAL	**11.31**	**9.84**	**76.16**	**0.08**	**7.57**	**1.67**
Screening-Level Thresholds	13.7	40	100	40	15	10
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-13
OPERATIONAL CRITERIA POLLUTANT EMISSIONS
WRF

Emission Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions, lbs/day						
WRF Emergency Generators	1.01	12.47	2.69	0.82	0.89	0.88
WRF Worker Travel – Vehicle Emissions	0.12	0.18	2.03	0.00	0.02	0.02
TOTAL WRF Emissions	**1.13**	**12.65**	**4.72**	**0.82**	**0.91**	**0.90**
Operational Emissions	64.52	70.07	422.70	0.50	41.70	9.36
TOTAL	**65.65**	**82.72**	**427.42**	**1.32**	**42.61**	**10.26**
Screening-Level Thresholds	75	250	550	250	100	55
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*
Annual Emissions, tons/year						
WRF Emergency Generators	0.00606	0.07483	0.01612	0.00495	0.00531	0.00527
WRF Worker Travel – Vehicle Emissions	0.02	0.03	0.37	0.00	0.00	0.00
TOTAL WRF Emissions	**0.026**	**0.078**	**0.39**	**0.00495**	**0.00531**	**0.00527**
Operational Emissions	11.31	9.84	76.16	0.08	7.57	1.67
TOTAL	**11.34**	**9.92**	**76.55**	**0.085**	**7.58**	**1.68**
Screening-Level Thresholds	13.7	40	100	40	15	10
Above Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Source: Scientific Resources Associated 2008

Table 2.2-14
CO "HOT SPOTS" EVALUATION

Intersection	Predicted CO Concentrations	
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm		
Existing Plus Other Projects Plus Project	***am***	***pm***
Ash Street at Pine Street	7.0	7.1
Pine Street at Olive Street	7.0	7.1
Pine Street at Main Street	7.4	7.8
Main Street at Montecito Road	7.3	7.5
SR-67 at Highland Valley Road/Dye Road	7.3	7.3
SR-67 at Archie Moore Road	7.4	7.5
Year 2030 Plus Project	***am***	***pm***
Ash Street at Pine Street	6.5	6.6
Pine Street at Olive Street	6.5	6.5
Pine Street at Main Street	6.6	6.7
Main Street at Montecito Road	--	6.6
SR-67 at Highland Valley Road/Dye Road	6.6	--
SR-67 at Archie Moore Road	6.7	6.7

Table 2.2-14 (cont.)
CO "HOT SPOTS" EVALUATION

Intersection	Predicted CO Concentrations
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm	
Existing plus Other Projects plus Project	
Ash Street at Pine Street	4.17
Pine Street at Olive Street	4.17
Pine Street at Main Street	4.66
Main Street at Montecito Road	4.45
SR-67 at Highland Valley Road/Dye Road	4.31
SR-67 at Archie Moore Road	4.45
Year 2030 Plus Project	
Ash Street at Pine Street	3.82
Pine Street at Olive Street	3.75
Pine Street at Main Street	3.89
Main Street at Montecito Road	3.75
SR-67 at Highland Valley Road/Dye Road	3.75
SR-67 at Archie Moore Road	3.89

Source: Scientific Resources Associated 2008

Table 2.2-15
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide	50 – 200	1
Methane	12 ± 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF4)	50,000	6,500
PFC: Hexafluoroethane (C2F6)	10,000	9,200
Sulfur Hexafluoride (SF6)	3,200	23,900

Source: EPA 2006

Table 2.2-16
CURRENT STATE REQUIREMENTS FOR GHG EMISSIONS ASSOCIATED WITH TRANSPORTATION

Strategy to Reduce GHG Emissions	Current State Requirements
Vehicle Climate Change Standards and Other Light Duty Vehicle Technology	This measure applies to motor vehicles. ARB is required (AB 1493) to adopt regulations that achieve the maximum feasible, cost-effective, and technologically achievable reductions of GHG pollution emitted by new passenger vehicles. Implementation of AB 1493 would reduce fleet-wide vehicle GHG emissions by 20 percent in 2020.
Low-carbon Fuels Standard	This measure applies to motor vehicle fuels. By 2020, motor fuels sold in California will have 10 percent low-carbon intensity compared to equivalent fuel sold in 2007. This standard would reduce greenhouse gas emissions from vehicles (and other gasoline power engines) associated with the Proposed Project.
Telework	All residential units would have access to high-speed Internet connections suitable for telecommuting (ARB Early Action Measure 2-21).

Source: Scientific Resources Associated 2008

Table 2.2-17
PROPOSED PROJECT DESIGN FEATURES TO REDUCE GHG EMISSIONS

Strategy to Reduce GHG Emissions	Proposed Project Design Features
Alternative Transportation	The Proposed Project would include pedestrian, bicycle, and equestrian trails that connect with the Ramona trail system and allow alternative transportation access to commercial centers.
Achieve 50 Percent Statewide Diversion Goal	The Project would require separation and recycling of construction waste. The Project also would provide residents with separate recycling and waste receptacles to support the 50 percent statewide solid waste diversion goal (AB 939).
Forestry	The Project landscaping palette would include drought-tolerant trees. These plantings would contribute to on-site carbon storage, provide shade, and reduce heating from impervious surfaces (ARB Early Action Measure/Energy Efficiency 2-9).
Afforestation/Reforestation	The Project's compact land use patterns would reduce habitat fragmentation and contribute to the preservation of natural habitats, including forests and woodlands. Approximately 550 to 575 acres (depending on which Wastewater Management Option is implemented) would be placed in biological open space, which would help balance carbon storage with any loss associated with future landscaping and/or residences.
~~Reclaimed Water~~Effluent Usage	Under Wastewater Management Option 2, the Project would generate 110,000 gpd of ~~reclaimed water~~effluent to be used for irrigation purposes. Use of ~~reclaimed water~~effluent would reduce imported water needs by approximately 37 percent.
Water Use Efficiency	The Project would strive for a 50 percent reduction in water use through features such as low-flow appliances (including toilets, shower heads, and washing machines), a drought-tolerant landscape palette, weather-based irrigation controllers, and other water conservation measures.
Building Energy Efficiency	Project structures would achieve energy performance equivalent to 10 percent better than current Title 24 standards.
Appliance Energy Efficiency	Project residents would be offered a choice of energy efficient appliances (including washers, dryers, and refrigerators) and installed appliances would be Energy Star (including dishwashers).
Smart Growth Land Use Patterns	Smart growth land use patterns that reduce the amount of land being developed result in the reduction of GHG emissions.
Hydrofluorocarbon Reduction	Consumer products installed in residences would comply with ARB's Early Action Guidance regarding the reduction of GHG emissions. The GHG emissions reductions associated with ongoing energy efficient appliance standards are expected to be approximately 7 million metric tons CO_2e by 2020.
Education	The Project Applicant would provide educational materials for future residents discussing strategies for reducing GHG emissions (ARB Early Action Measure/Education 2-7).

Source: Scientific Resources Associated 2008

Table 2.2-18
GHG EMISSIONS UNDER OPERATIONAL CONTROL OF PROJECT APPLICANT

Category	Source	Metric Tons of CO_2/year	Absolute GHG Reduction	Percentage GHG Reduction
Direct Emissions	**Natural gas (Scope 1)**	688		
	Reduction due to 10% increase over Title 24 standards		69	10%
Indirect Emissions	**Purchased electricity (Scope 2)**	1,784		
	Reduction due to Renewable Portfolio Standard		178	10%
	Reduction due to 10% increase over Title 24 standards		178	10%
	Embodied energy of water use (Scope 3)	334		
	Reduction due to use of ~~reclaimed water~~effluent*		209	37.5%
Transportation	**ADT method (Scope 3)**	7,150		
TOTALS	**Direct + Indirect + Transportation**	**9,956**		
	Operational Control**	**2,806**		
	Reductions		**634**	**22.5%**

Source: Scientific Resources Associated 2008

* Wastewater Management Option 2 would require use of effluent generated by the proposed WRF. If Option 1 is selected, RMWD also would require use of reclaimed water.

** direct + indirect emissions

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